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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Y. C. Lim

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7590

01/26/2006

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EXAMINER

DO, CHAT C

ART UNIT

PAPER NUMBER

2193

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/041,044

**Applicant(s)**

LIM, Y. C.

**Examiner**

Chat C. Do

**Art Unit**

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005 and 17 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This communication is responsive to Amendment filed 11/16/2005 and 10/17/2005.
2. Claims 1-6 are pending in this application. Claims 1 and 4 are independent claims. This Office Action is made non-final after a RCE filed 11/16/2005.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 1,

The term "minimal distortion" in line 8 is a relative term which renders the claim indefinite. The term "minimal distortion" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The current language of claim 1 does not define how much distortion is allowed is considered to be minimal. For examination purposes, the examiner considers this limitation as digital filter having signal spectral characteristics including magnitude and phase as conventional digital filter.

The limitation “first order or second order digital filters do not introduce additional delay of electrical signal” in lines 9-10 is mis-descriptive because the digital filter is a processed delay. For examination purposes, the examiner considers this limitation as relative delay.

Re claim 4, it has same rejection as claim 1.

Thus, claims 2-3 and 5-6 are also rejected for being dependent on the rejected base claims 1 and 4 respectively.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Tan et al. (U.S. 6,233,594).

Re claim 1, Tan et al. disclose in Figure 4 a multichannel digital filter bank (110) comprising: a plurality of first order (e.g. 122, 124 in Figure 4) or second order digital filters, connected in a cascade fashion (e.g. 122 and 124 one after another) whereby electrical signals are enhanced, attenuated or kept the same (e.g. signal coming out from filter 124 in Figure 4 wherein the filtered electrical signals must be in either enhanced or

improve, attenuated or distorted, or same signal), after passing through cascading sub-filters, wherein first order or second order digital filters are of the recursive type (feedback as seen in 122 with delay  $z^{-1}$ ) suitable for graphically equalizing electrical signals received via a communication path, wherein first or second order digital filters have minimal distortion of signal spectral characteristics including magnitude and phase (col. 2 lines 1-15), wherein first order or second order digital filters do not introduce additional delay of electrical signals received via communication path (e.g. inherently as relative delay), and wherein first or second order digital filters do not require multiple sampling frequencies (e.g. col. 3 lines 45-65 wherein only one frequency is used per digital filter at a time).

Re claim 4, it is a method of claim 1. Thus, claim 4 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

7. Claims 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Dyer (U.S. 4,947,360).

Re claim 2, Dyer discloses in Figures 1-2 a multichannel digital filter bank comprising: a plurality of first order (e.g. 1 and 3) or second order digital filters, connected in a cascade fashion (e.g. filter 1 is after filter 3) whereby electrical signals are enhanced, attenuated or kept the same (e.g. Figure 3 wherein the filtered electrical signals must be in either enhanced or improve, attenuated or distorted, or same signal), after passing through cascading sub-filters, wherein first order or second order digital filters are of the recursive type (e.g. in 1 with feedback signal) suitable for graphically equalizing

electrical signals received via a communication path, wherein first or second order digital filters have minimal distortion of signal spectral characteristics including magnitude and phase (col. 1 lines 35-50) , wherein first order or second order digital filters do not introduce additional delay of electrical signals received via communication path (e.g. inherently as relative delay), and wherein first or second order digital filters do not require multiple sampling frequencies (e.g. col. 3 lines 45-65 wherein only one frequency is used per digital filter at a time), wherein the transfer function is  $H(z) = \{1-az^{-1}\}/\{1-bz^{-1}\}$  (e.g. B(z) equation in col. 2 line 29 wherein  $b = K_3$  and  $a = -(K_2K_4-K_3)$ ) ; wherein  $|a|$  and  $|b|$  are less than 1 (e.g. all values of coefficients are cited in Table 1 in col. 4 less than 1) and same sign.

Re claim 5, it is a method of claim 2. Thus, claim 5 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

8. Claims 3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Cox et al. (U.S. 5,353,346).

Re claim 3, Cox et al. disclose in Figure 2 a multichannel digital filter bank (e.g. 14H and 24H) comprising: a plurality of first order or second order digital filters (e.g. equation 50 in col. 3), connected in a cascade fashion (e.g. 14H and 24H) whereby electrical signals are enhanced, attenuated or kept the same (e.g. wherein the filtered electrical signals must be in either enhanced or improve, attenuated or distorted, or same signal) after passing through cascading sub-filters, wherein first order or second order digital filters are of the recursive type suitable for graphically equalizing electrical signals

received via a communication path, wherein first or second order digital filters have minimal distortion of signal spectral characteristics including magnitude and phase, wherein first order or second order digital filters do not introduce additional delay of electrical signals received via communication path (e.g. inherently as relative delay), and wherein first or second order digital filters do not require multiple sampling frequencies (e.g. col. 3 lines 45-65 wherein only one frequency is used per digital filter at a time), wherein the transfer function is  $H(z) = \{1 - 2g\cos(p)z^{-1} + g^2z^{-2}\} / \{1 - 2r\cos(p)z^{-1} + r^2z^{-2}\}$  (e.g.  $H(z)$  in col. 3 line 50 wherein  $g = 1$ ;  $r = \beta$ ;  $p = 2\pi f_{est}T$  as seen in col. 6 line 10).

Re claim 6, it is a method of claim 3. Thus, claim 6 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

a. The applicant argues in pages 8-11 for all claims that the cited reference(s) fails to disclose no additional delay of the inbound signal and the feature of not requiring multiple sampling frequencies as cited in the claim.

The examiner respectfully submits that the features of no additional delay of the inbound signal and the feature of not requiring multiple sampling frequencies are rejected under 112 above and disregard in the art rejection. As clearly stated in the rejection. The digital filter, itself, is already a processed delay.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do  
Examiner  
Art Unit 2193

January 23, 2006



**TODD INGBERG  
PRIMARY EXAMINER**